

### REMARKS

In paragraph 1 of the Office Action it is indicated that:

“Claim 2 is objected to because of the following informalities:

- In claim 2, line 2; --sidewall-- should be inserted after “second.”
  - In claim 2, lines 3; --portion-- should be inserted after “sidewall.”
- Appropriate correction is required.”

Responsive hereto Applicant has amended claim 2 to insert --sidewall-- and --portion-- as indicated in the Office Action.

Additionally, Applicant has further reviewed claims 1, 6, 7, 19 and 20 to make similar corrections such that the antecedent basis of the first sidewall portion and second sidewall portion are consistently stated. Applicant therefore respectfully submits that this ground of objection has been satisfied.

In paragraph 2 of the Office Action claims 1, 2, 6, 7 and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohtsuka et al (US 5,774,308), stating:

“With regard to claims 1, 6 and 19, Ohtsuka et al shows a magnetic head in Fig. 7 including: a substrate 21; a read head 22 (Column 7, line 47) being fabricated upon the substrate; a P1 pole 24 (Column 7, line 37) being fabricated upon the read head; a write gap layer 27 being fabricated upon the read head; a write gap layer 27 being fabricated upon the P1 pole; a P2 pole tip includes a first (right of 26b) sidewall surface portion being comprised of a seed layer 26c (Column 8, lines 2-6) and a second (left of 26b) sidewall portion being comprised of a material; and wherein the base surface and the side wall surface are comprised of an integrally formed P2 pole tip seed layer material FeN.

With regard to claims 1 and 6, Ohtsuka et al further shows that the P2 pole tip includes a first portion being comprised of a seed layer material 26C (Fig. 7) and a second portion 26a being comprised of material, and wherein the P2 pole tip has a thickness dimension t, and a base having a width dimension W and wherein the seed layer 26C is comprised of an integrally formed layer of material that forms the base 26C and a sidewall 26b of the P2 pole tip that extends through the thickness t of the p2 pole tip.

With regard to claim 19, Ohtsuka et al further shows the first sidewall portion and the second sidewall portion are made of same material (Column 8, lines 7-11)

A “product by process” claim is directed to the product per Se, no matter how actually made, see In re Hirao, 190 USPQ 15 at 17 (footnote 3 CCPC, 5/27/76); In re Brown, 173 USPQ 685 (CCPA 5/18/72); In re Luck, 177 USPQ

523 (CCPA, 4/26/73); In re Fessmann, 180 USPQ 324 (CCPA, 1/10/74); In re Thorpe, 227 USPQ 964 (CAFC, 11/21/85). The patentability of the final product in a 'product by process' claim must be determined by the product itself and not the actual process and an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. In claims 1 and 6, the limitation of "electroplated" is a process limitation, which gains no weight in determining patentability.

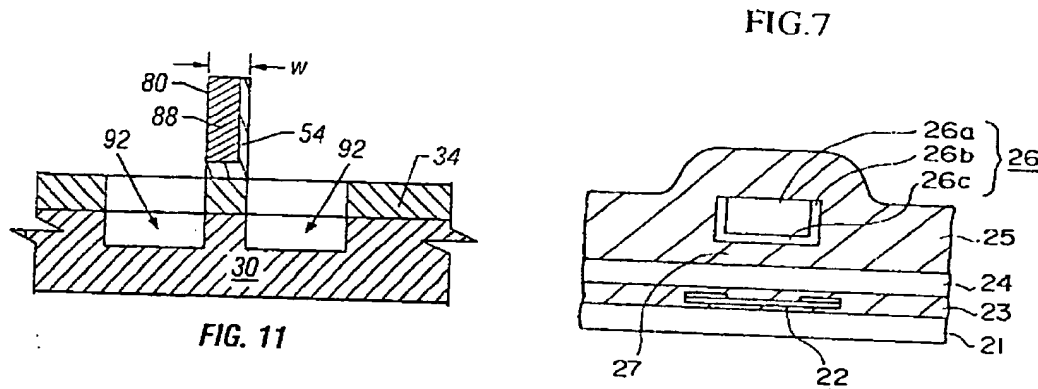
With regard to claims 2 and 7, Ohtsuka et al further shows the material that comprises the second sidewall portion of the P2 pole tip upon the seed layer material that forms the first sidewall portion of the P2 pole tip (Column 8, lines 7-11).

With regard to claim 20, Ohtsuka et al further shows that the base surface defines a width W of the P2 pole tip and the sidewall defines a thickness t of the P2 pole tip."

Initially, Applicant agrees with the comment in the Office Action that process claim limitations do not add weight in determining patentability. Reflective thereof, Applicant has amended the independent claims 1, 6 and 19 to delete the word --electroplated-- and replace it with "non-seed layer"; dependent claims are similarly amended for proper antecedent basis. This amendment reflects the previously existing claim limitations that Applicant's P2 pole tip is comprised of two materials. The two materials were previously stated as a seed layer material and an electroplated material. As is well known, an electroplated material has a different crystalline structure than a seed layer material, that is, a structural difference in addition to a process difference, however, to simply avoid the process step interpretation of the use of the word "electroplated", Applicant has elected to change that word to "non-seed layer". As a result, the claims, as amended, continue to recite that Applicant's P2 pole tip is comprised of two materials, those being a seed layer material and a non-seed layer material.

With regard to the claim rejection based upon Ohtsuka '308, Applicant respectfully traverses this ground of rejection. To illustrate Applicant's argument, Applicant has reproduced

Fig. 7 of Ohtsuka '308 herein (with Applicant's further annotations), and Applicant has also inserted Fig. 11 of this application for comparison.



With regard to claim 1 and with reference to Applicant's Fig. 11, it can be seen that Applicant's P2 pole tip includes a first sidewall portion that is comprised of a seed layer material 54 and a second sidewall portion that is comprised of a non-seed layer material 88. The limitation that the second sidewall portion is composed of a non-seed layer material distinguishes Applicant's P2 pole tip from Ohtsuka '308. Specifically, as depicted in Fig. 7 of Ohtsuka '308, its P2 pole tip includes a first sidewall portion 26b that is comprised of seed layer material and a second sidewall portion 26d (added by Applicant) that is also comprised of seed layer material. With further regard to this ground of distinction, the Office Action rejection states:

"With regard to claim 19, Ohtsuka et al further shows the first sidewall portion and the second sidewall portion are made of the same material (column 8, lines 7-11)."

Further, as stated in the Examiner's response to arguments (paragraph 4 of the Office Action)

"As described above, the limitations of "electroplated" and "plated" do not gain weight in determining patentability. The material for the second sidewall is only limited as "A material, which can be any material."

As indicated hereabove, and reflective of these comments, Applicant's amended claims now recite that the first sidewall portion is comprised of a seed layer material and the second sidewall portion is comprised of a non-seed layer material. Applicant's amendments to the claims therefore respond to this comment in the Office Action.

Applicant therefore respectfully submits that independent claims 1, 6 and 19 recite structural limitations that are not taught by Ohtsuka '308; specifically, that the first sidewall portion and second sidewall portion are comprised of different materials, those being a seed layer material and a non-seed layer material.

With regard to dependent claims 2, 7, 20 and 21, Applicant urges that these claims are allowable in that they depend from an allowable base claim.

In paragraph 3 of the Office Action claims 3-5, 8-10 and 22 -24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al in view of Honjo et al (US 6,466,416), stating:

"With regard to claims 3, 4, 8, 9, and 22 and 23, Ohtsuka et al further shows the seed layer material is formed with a thickness of 0.1 micron (1000 Å; column 7, lines 56-58) and the electroplated material having thickness of 3 microns (30000 Å; column 7, lines 59-65); but does not show the seed layer material thickness is approximately 50 Å to 500 Å (or 250 Å) and the electroplated material thickness is approximately 100 Å to 5000 Å (or 1500 Å).

However, Honjo et al shows a magnetic head, wherein the seed layer material 14 is formed with a thickness of 100 Å (column 12, lines 31-32), which is approximately 50 Å to approximately 500 Å, and the electroplated material 11 is formed with a thickness of 5000 Å (Column 12, lines 43-44).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the following range: the seed layer material thickness is approximately 50 Å to 500 Å (or 250 Å) and the electroplated material thickness is approximately 100 Å to 5000 Å (or 1500 Å). The rationale is as follows: Applicant does not specify a particular reason for use this particular thickness. One of ordinary skill in the art would have been determining the suitable thickness through experimentations and optimization. Ohtsuka et al's patent was filed in 1996, which is much earlier than the time this invention was made. Thinning the thickness to upgrade the data rate is a well-known trend in the art. Honjo has taught of using thinner thickness of the layers and teaches that the seed layer material thickness should falls in the range of more than 50 Å and less 1000 Å for balancing the good layer quality and the writing capability (Column 12, lines 33-42). One of ordinary skill in the art would have been motivated by Honjo et al's teaching and follow the trend in the art to find a suitable thickness through experimentation and optimization, which would include the following range: the seed layer material is formed with a thickness approximately 50 Å to 500 Å (or 250 Å) and the electroplated material thickness is approximately 100 Å to 5000 Å (or 1500 Å).

With regard to claims 5, 10 and 24, Ohtsuka et al shows the seed layer material is made of FeN film with high saturation magnetic flux density Of 2 T (Column 5, lines 49-58) and the electroplated material 26c is made of NiFe

(Column 7, lines 56); but fails to show that the seed layer material is comprised of NiFe.

Honjo et al shows that CoNiFe, which is comprised of NiFe, has high saturation magnetic flux density of 1.9-2.2 T (Column 5, lines 18-19).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include CoNiFe as a candidate for the seed layer. The rationale is as follows: in Ohtsuka et al, the seed layer needs to have high saturation magnetic flux density of 2T, CoNiFe has saturation magnetic flux density of 1.9-2.2 T. One of ordinary skill in the art would have been motivated to include CoFeNi as a material for the seed layer."

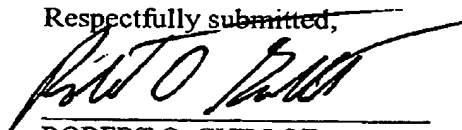
With regard to dependant claims 3-5, 8-10 and 22-24, Applicant urges that these dependent claims are allowable in that they depend from an allowable base claim, either directly or indirectly.

Having responded to all of the paragraphs of the Office Action, and having amended the claims accordingly, Applicant respectfully submits that the Application is now in condition for allowance. Applicant therefore respectfully requests that a Notice of Allowance be forthcoming at the Examiner's earliest opportunity. Should the Examiner have any questions or comments with regard to this amendment, a telephonic conference at the number set forth below is respectfully requested.

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Respectfully submitted,



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Via facsimile to: (703) 872-9306

February 16, 2005  
(date)

  
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